

FORM PTO-1390
(REV 3/2001)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

DATE: February 25, 2002

EXPRESS MAIL LABEL NO.
EL71737784US

ATTORNEY DOCKET NO.
47963/DBP

U.S. APPLICATION NO.

10/069738

INTERNATIONAL APPLICATION NO.
PCT/IB00/00852

INTERNATIONAL FILING DATE
June 26, 2000

PRIORITY DATE CLAIMED
None

TITLE OF INVENTION

INTERSECTED CONE-SHAPED AIR FILTER FOR AN AUTOMOTIVE INTERNAL COMBUSTION ENGINE

APPLICANT(S) FOR DO/EO/US

WIJAYA, Heru, Prasanta

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/LUS).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - a. ☒ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired
 - d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (UNEXECUTED)
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5))

Items 13 to 20 below concern document(s) or other information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included
15. ☒ A **FIRST** preliminary amendment
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment..
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ **SMALL ENTITY** Assertion: Applicant(s) and any other associated with it/them under 37 CFR § 1.27(a) are a small entity
20. ☒ Certificate of Mailing by Express Mail.
21. ☒ Other items or information: Extra Set of Drawings

U.S. APPLICATION NO. (If known, see 37 CFR 1.51) N/A 10/069738		INTERNATIONAL APPLICATION NO. PCT/IB00/00852		ATTORNEY DOCKET NO. 47963/DBP	
21. The following fees are submitted:				CALCULATIONS	
<input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,040.00					
<input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00					
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00					
<input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00					
<input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$ 890	
Surcharge of \$130 for furnishing the oath or declaration later than <input checked="" type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e))				\$ 130	
Claims	Number Filed	Number Extra	Rate		
Total Claims	5 -20=	0	X \$18	\$	
Independent Claims	1 -3=	0	X \$84	\$	
Multiple dependent claim(s) (if applicable)			+ \$280	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 1,020	
Reduction by 1/2 for filing by small entity, if applicable. Verified Small entity statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28)				\$ 510	
SUBTOTAL =				\$ 510	
Processing fee of \$130 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
TOTAL NATIONAL FEE =				\$ 510	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	
TOTAL FEES ENCLOSED =				\$ 510	
Note (1): The basic national fee must be paid when filing this application. The 20-month time limit (37 CFR § 1.494) and 30-month time limit (37 CFR § 1.495) are not extendable.				Amount to be:	
				refunded	\$
				charged	\$
<p>a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>510.00</u> to cover the above fees is enclosed.</p> <p>b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.</p> <p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>03-1728</u>. A duplicate copy of this sheet is enclosed.</p>					
<p>NOTE (2): Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</p>					
<p>SEND ALL CORRESPONDENCE TO:</p> <p>D. Bruce Prout CHRISTIE, PARKER & HALE P.O. Box 7068 Pasadena, CA 91109-7068</p> <p>CUSTOMER NUMBER: 23363</p>					
				By <u>Mark Gerson</u> #31953 For D. Bruce Prout Reg. No. 20,958	

10/069738

JG13 Rec'd PCT/PTO 25 FEB 2002

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

EXPRESS MAIL NO. EL717377784US

Applicant : Heru Prasanta Wijaya
Application No. : N/A
Filed : February 25, 2002
Title : INTERSECTED CONE-SHAPED AIR FILTER FOR AN
AUTOMOTIVE INTERNAL COMBUSTION ENGINE

Docket No. : 47963/DBP/R130

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Post Office Box 7068
Pasadena, CA 91109-7068
February 25, 2002

Commissioner:

Please amend the above-identified application as follows:

IN THE SPECIFICATION

After the title please add the following:

-- CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority of International application number PCT/IB00/00852, filed June 26, 2000--.

IN THE CLAIMS

By this Amendment, Applicant is amending claim 3, and adding new claim 5. Pending claims 1 to 5 follow.

1. An intersected cone-shaped air filter (I) for focusing air flow within an automotive internal combustion engine which comprises:

a hollow body (2) of specified thickness whose side dips 2° to 7° with respect to vertical axis and is made up of symmetric longitudinally folded filter paper material whose thickness governs the thickness of the air filter body (2),

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a clamping ring (3) which is fixedly disposed along the outer periphery of the upper and the lower ends of the filter body (2) for strengthening the filter body construction; and the way out of clean air is on the top of intersected cone.

2. An intersected cone-shaped air filter according to claim 1 that has a hollow body (2') whose outer wall of the air filter body shape is cylindrical and the inner wall of the air filter body is intersected cone.

3. (Amended) An intersected cone-shaped air filter, which has a hollow body shape as described on claim 1, made of the porous material.

4. An intersected cone-shaped air filter according to claim 1 for producing driving force that increases the velocity and the mass of the air- fuel mixture.

5. (NEW) An intersected cone-shaped air filter, which has a hollow body shape as described on claim 2, made of the porous material.

REMARKS

Claims 1-4 remain in the application. Claim 3 has been amended, and claim 5 has been added. It is respectfully requested that the foregoing preliminary amendment be entered prior to examination.

Attached hereto is a marked-up version of the changes made to the claim by the current amendment. The attached page is captioned "Version with markings to show changes made."

Respectfully submitted,
CHRISTIE, PARKER & HALE, LLP

By *D. Bruce Prout* #31,953
For D. Bruce Prout
Reg. No. 20,958
626/795-9900

DBP/aam

Application No. N/A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

3. (Amended) An intersected cone-shaped air filter, which has a hollow body shape as described on [~~claims 1 and 2~~] claim 1, made of the porous material.

AAM PAS417107 1-*2/25/02 3 23 PM

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



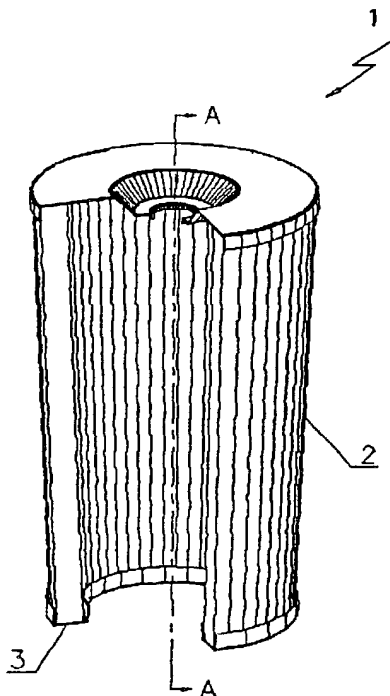
(43) International Publication Date
3 January 2002 (03.01.2002)

(10) International Publication Number
WO 02/01060 A1

- (51) International Patent Classification⁷: **F02M 35/024** (81) Designated States (*national*): AU, BR, CA, CN, JP, KR, RU, SG, US.
- (21) International Application Number: PCT/IB00/00852 (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- (22) International Filing Date: 26 June 2000 (26.06 2000)
- (25) Filing Language: English Published:
— with international search report
— with amended claims
- (26) Publication Language: English
- (71) Applicant and
(72) Inventor: **WIJAYA, Heru, Prasanta** [ID/ID], Graha Famili D.183, PR. Kali Kendal, Surabaya 60226 (ID).
- (74) Agent: **PRIAPANTJA, Cita, Citrawinda**; Biro Oktroi Roosseno, Kantor Taman A9, Unit C1-C2, J1. Mega Kuningan, Kuningan, Jakarta 12950 (ID).
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette*

(54) Title: **INTERSECTED CONE-SHAPED AIR FILTER FOR AN AUTOMOTIVE INTERNAL COMBUSTION ENGINE**

(57) Abstract: This invention relates to an intersected cone-shaped air filter (1) for focusing air flow within an automotive internal combustion engine which substantially comprises a hollow body (2) of specified thickness whose side dips 2° to 7° with respect to vertical axis, and a clamping ring (3) which is fixedly disposed along the outer periphery of the upper and the lower ends of the filter body (2) for strengthening the filter body construction. The air filter body is made up of symmetric longitudinally folded filter paper materials whose thickness governs that of the air filter body (2).



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Description

5 INTERSECTED CONE-SHAPED AIR FILTER FOR AN AUTOMOTIVE
INTERNAL COMBUSTION ENGINE

Technical Field of Invention

10 This invention relates to an air filter, particularly
an intersected cone-shaped air filter that can focus airflow
into an automotive internal combustion engine.

Background of Invention

15 Current automotive technology needs automotive engines
of high performance. A highly performed automotive engine
requires that fuel must be proportionately mixed with clean
air and the mixture produced can quickly reach the internal
combustion charge.

20 There are two options for the accomplishment of the
conditions cited above. The first is to minimize fluid
friction, and the second one is to exert a driving force on
the mixture. It can be performed only by designing
appropriately the aerodynamic construction of the air
25 filter.

The object of this invention is thus to provide an air
filter wherein a driving force is performed due to the
focusing of the airflow on the midmost streamline. Based on
its shape, i.e., intersected cone, the air filter is
30 referred to CYCLO FILTER.

Brief Description of the Invention

35 This intersected cone-shaped air filter is designed for
the purpose of filtering the air flowing into an automotive
internal combustion engine and focusing it to the midmost
streamline. Due to its intersected conical shape, the
effective area of this air filter's cylindrical surface is

advantageously larger than that of previously adapted filters.

The larger the effective area of this air filter's cylindrical surface is, the more the mass of the air-fuel mixture that will flow into the combustion chamber. And the driving force resulted in due to the focusing of air flow on the midmost streamline will increase the velocity and the mass of the air-fuel mixture within the combustion chamber. Consequently, it will be generated by the automotive engine.

10

Brief Description of the Drawing

Figure 1a is a perspective view of the air filter presently invented with body being partially opened.

15

Figure 1b is a longitudinal cross section along line A-A of the embodiment in shown in Figure 1a.

Figure 2a is a perspective view of the modification of the air filter presently invented with body being partially opened.

20

Figure 2b is a longitudinal cross section along line A'-A' of the embodiment in shown in Figure 2a.

Figure 3 is a schematic diagram showing the path of the airflow from the atmosphere into an automotive internal combustion engine.

25

Detailed Description of the Invention

Figure 1a and 1b show a basic construction of an intersected cone-shaped air filter (1) comprising a hollow body (2) of specified thickness the side of which dips downwardly 2° to 7° with respect to vertical axis. The filter body is made up of symmetric longitudinally folded filter paper materials whose thickness governs the thickness of the air filter body (2).

30

A clamping ring (3) is fixedly disposed along the outer periphery of the upper and the lower ends of the filter body (2) for strengthening the filter body construction.

Figure 2a and 2b show the one of the modifications of the cone-shaped air filter, which have specific hollow body (2'). The outer wall body of the air filter shape is cylindrical and the inner wall body of the air filter shape is intersected cone.

Figure 3 is a schematic diagram showing the path of the air flow from the atmosphere into an automotive internal combustion engine. Air from the atmosphere is directed to an air filter (I) through the air filter body. Owing to the shape of the filter, the air flows through the centre of the smaller end of the filter into the mixing chamber (II). The air and fuel which have become air-fuel mixture after entering the mixing chamber, flows further into the combustion engine (III). The driving force resulted in due to the focusing of the airflow on the centre of the smaller end of the filter will increase the velocity and the mass of the air-fuel mixture within the combustion chamber.

The preferred embodiments described within this specification are intended only for illustration, not to limit the scope of invention. Modification of any kind is always possible for them skilled in the art as long as it is still within the scope of invention and claim.

Claim

1. An intersected cone-shaped air filter (1) for focusing
air flow within an automotive internal combustion
5 engine which comprises:
a hollow body (2) of specified thickness whose
side dips 2° to 7° with respect to vertical axis and
is made up of symmetric longitudinally folded filter
paper material whose thickness governs the thickness
10 of the air filter body (2),
a clamping ring (3) which is fixedly disposed
along the outer periphery of the upper and the lower
ends of the filter body (2) for strengthening the
filter body construction.
15
2. An intersected cone-shaped air filter that have a
hollow body (2') whose outer wall of the air filter
body shape is cylindrical and the inner wall of the
air filter body is intersected cone.
20
3. An intersected cone-shaped air filter, which has a
hollow body shape as described on claims 1 and 2, made
of the porous material.

AMENDED CLAIMS

[received by the International Bureau on 03 May 2001 (03.05.01);
original claims 1-3 replaced by amended claims 1-4 (1 page)]

1. An intersected cone-shaped air filter (1) for focusing air
flow within an automotive internal combustion engine which
comprises:
a hollow body (2) of specified thickness whose side
dips 2° to 7° with respect to vertical axis and is made up
of symmetric longitudinally folded filter paper material
whose thickness governs the thickness of the air filter body
(2),
a clamping ring (3) which is fixedly disposed along
the outer periphery of the upper and the lower ends of the
filter body (2) for strengthening the filter body
construction; and the way out of clean air is on the top of
intersected cone.
2. An intersected cone-shaped air filter according to claim 1
that has a hollow body (2') whose outer wall of the air
filter body shape is cylindrical and the inner wall of the
air filter body is intersected cone.
3. An intersected cone-shaped air filter, which has a hollow
body shape as described on claims 1 and 2, made of the
porous material.
4. An intersected cone-shaped air filter according to claim 1
for producing driving force that increases the velocity and
the mass of the air- fuel mixture.

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(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 January 2002 (03.01.2002)

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(10) International Publication Number
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(51) International Patent Classification⁷: **F02M 35/024**

(81) Designated States (*national*): AU, BR, CA, CN, JP, KR, RU, SG, US.

(21) International Application Number: PCT/IB00/00852

(84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

(22) International Filing Date: 26 June 2000 (26.06.2000)

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Published:

(26) Publication Language: English

- with international search report
- with amended claims

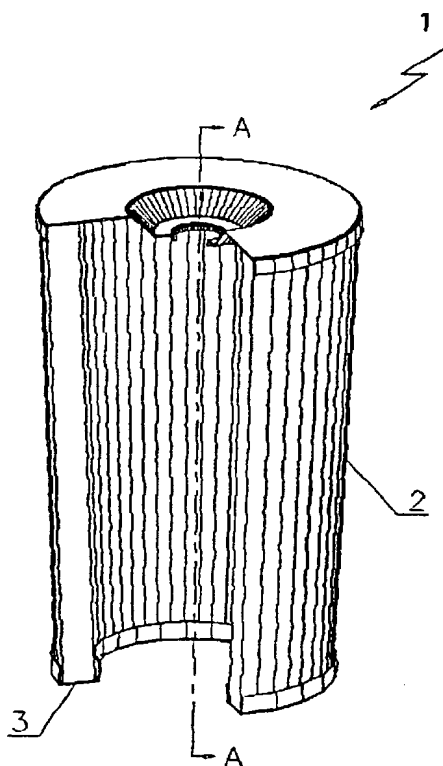
(71) Applicant and

(72) Inventor: **WIJAYA, Heru, Prasanta** [ID/ID]; Graha Famili D.183, PR. Kali Kendal, Surabaya 60226 (ID).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette

(74) Agent: **PRIAPANTJA, Cita, Citrawinda**; Biro Oktroi Roosseno, Kantor Taman A9, Unit C1-C2, J1 Mega Kuningan, Kuningan, Jakarta 12950 (ID).

(54) Title: INTERSECTED CONE-SHAPED AIR FILTER FOR AN AUTOMOTIVE INTERNAL COMBUSTION ENGINE



(57) Abstract: This invention relates to an intersected cone-shaped air filter (1) for focusing air flow within an automotive internal combustion engine which substantially comprises a hollow body (2) of specified thickness whose side dips 2° to 7° with respect to vertical axis, and a clamping ring (3) which is fixedly disposed along the outer periphery of the upper and the lower ends of the filter body (2) for strengthening the filter body construction. The air filter body is made up of symmetric longitudinally folded filter paper materials whose thickness governs that of the air filter body (2).



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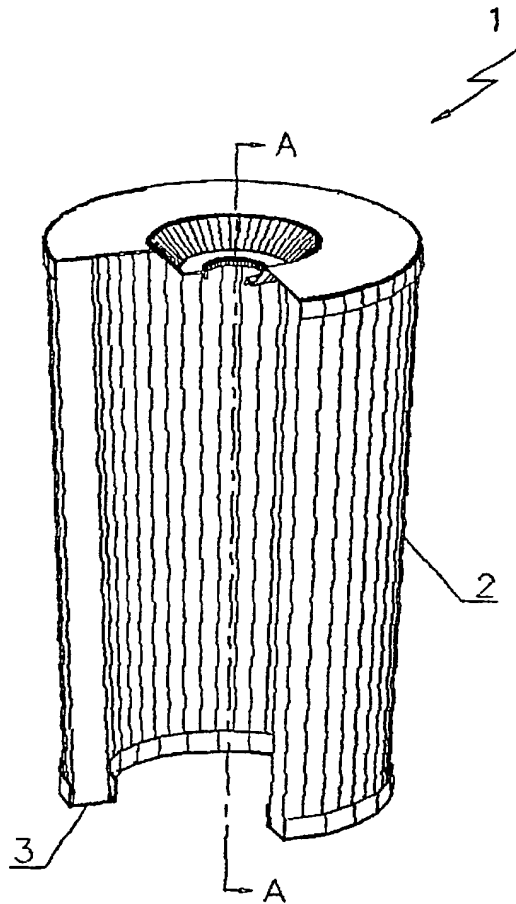


Figure 1a

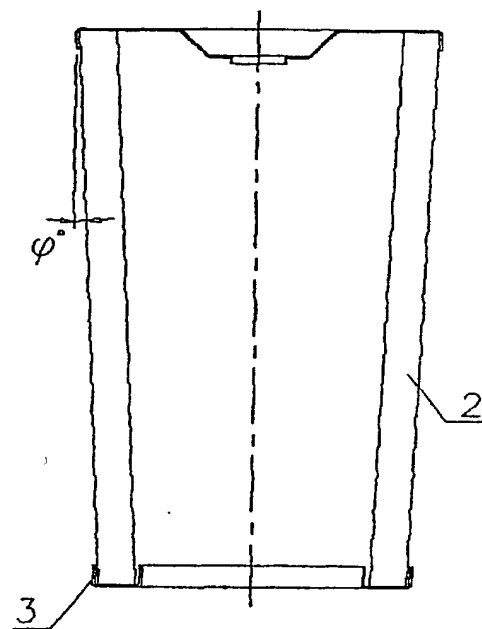


Figure 1b

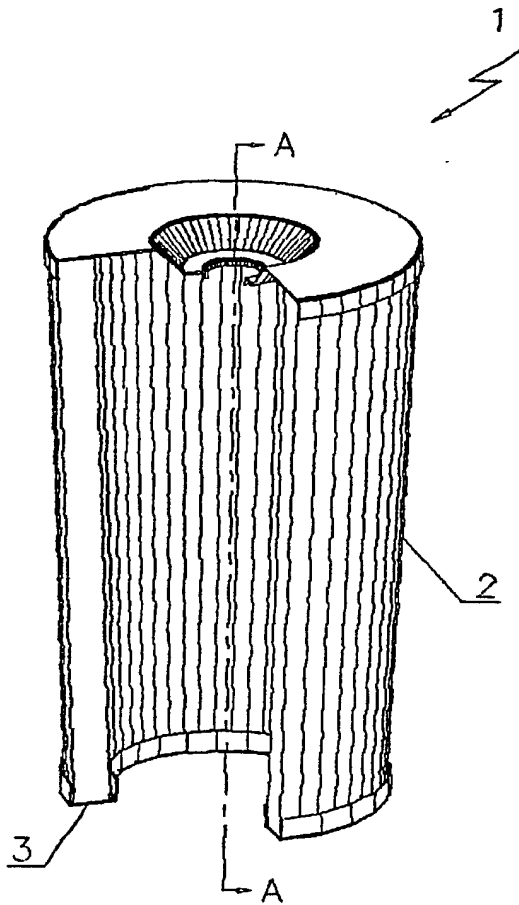


Figure 2a

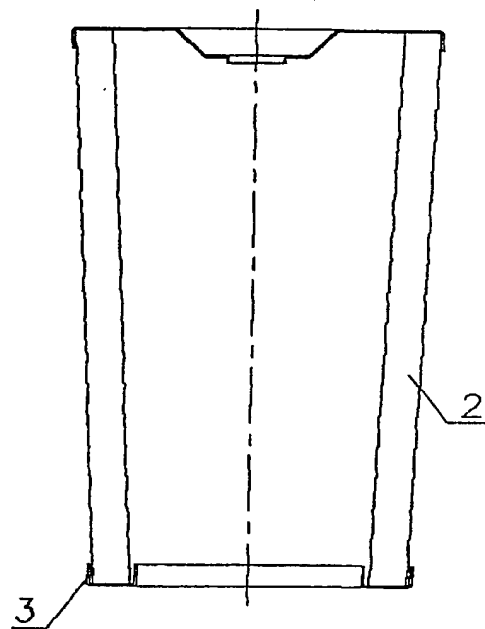
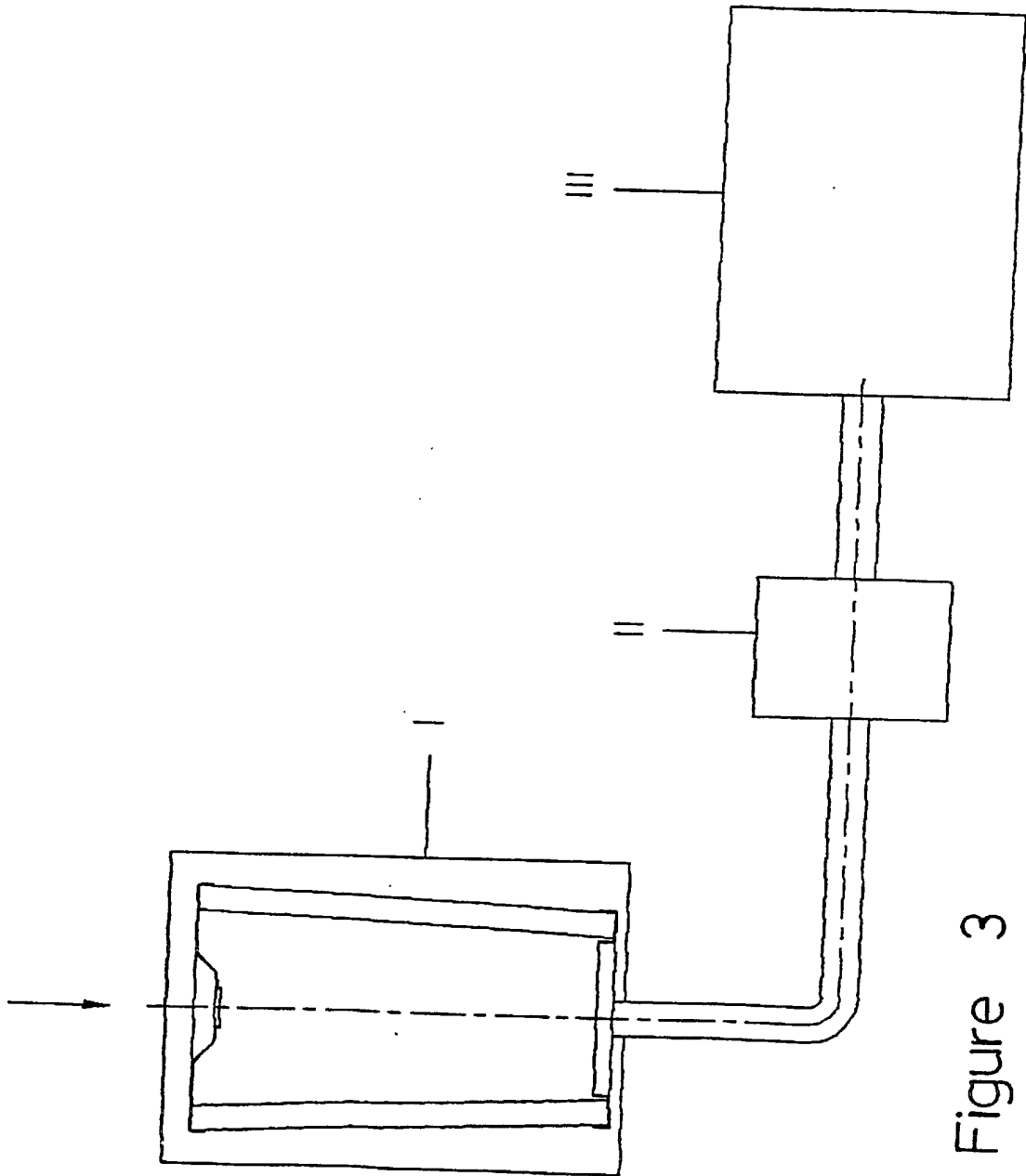


Figure 2b



PATENT

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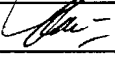
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DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATIONS

PATENT

Docket No. 47963/DBP/R130

(8)
100

Full Name of First or Sole Inventor HERU PRASANTA WIJAYA	Inventor's Signature 	Date 25.02.2022
Residence and Post Office Address Graha Famili D. 183, PR. Kali Kendal, SURABAYA 60226, INDONESIA		Citizenship INDONESIA

FOX

Full Name of Second or Joint Inventor	Inventor's Signature	Date
Residence and Post Office Address		Citizenship

Full Name of Third or Joint Inventor	Inventor's Signature	Date
Residence and Post Office Address		Citizenship

Full Name of Fourth or Joint Inventor	Inventor's Signature	Date
Residence and Post Office Address		Citizenship

Full Name of Fifth or Joint Inventor	Inventor's Signature	Date
Residence and Post Office Address		Citizenship

Full Name of Sixth or Joint Inventor	Inventor's Signature	Date
Residence and Post Office Address		Citizenship